Site 24 Salisbury Beach Reservation – Black Rock Beach

Overview: The Black Rock Beach potential restoration site is located at the southern end of the Salisbury Beach State Reservation at the confluence of Black Rock Creek and the Merrimack River. Two adjacent areas were investigated. The western area lies immediately to the west and south of the boat launch parking area. The eastern area lies immediately to the south of the boat launch access road. The western and eastern areas encompass approximately 5 ac, however, only the eastern area, totally approximately 2.7 ac, is recommended for further consideration. They are separated by a heavily traveled foot path used to access the southern tip of the Reservation. Based on a review of historical USGS mapping dating back to 1894, the southern tip of Salisbury Beach has experienced significant man-made and natural landscape modifications over time. The 1894 Newburyport-Exeter, NH-MA Quadrangle USGS 15 Minute Series shows a road and trolley line servicing several structures at the southern end of the barrier beach. This mapping also shows several large embayments. The 1912 Coastal Survey depicts a highly modified shoreline without a trolley line and the major embayment is shown as salt marsh which now includes most of the eastern potential restoration area and a large portion of the current camping facility. This area of salt marsh is absent from the 1940's USGS mapping with the exception of a ponded area within the current camping facility. These landscape modifications may be the combined effects of severe coastal storms (e.g., 1938 hurricane), more gradual barrier beach processes and man-induced impacts. There is little question that construction of the camping infrastructure along with the boat launch facility and access road resulted in some relatively recent the filling of wetlands. Hand auger borings taken from both areas did not expose a major buried peat horizon.

Structure conditions: There are no existing structures associated with this potential restoration site. One restoration possibility would include the construction of a new culvert under the access road which was recently repaved and is in good condition. The road has a paved width of 19 ft and includes broad unpaved shoulders on both sides that are used for over-flow parking.

Ecological Integrity: The soils within both restoration areas consist primarily of wind blown sands with little organic development. The western area consists primarily of sparsely vegetated low coastal dune adjacent to a small salt marsh fringing the intertidal zone. While this area may have supported salt marsh vegetation at some point in the distance past, the area currently appears to be functioning well as part of a bordering dune system. It is likely that this area will continue to expand naturally into the narrow fringing salt marsh. Attempts to remove the wind blown sand deposits from this area to an elevation similar to the adjacent marsh would likely be short-lived and quickly revert to dune. The eastern area lies behind the protection of a better established primary dune system. These dunes and adjacent barrier beach support nesting pairs of least terns and piping plovers (both listed species) and are fenced off from pedestrian access during several months in the spring and summer.

The area north of the dunes and south of the access road primarily consists of maritime grassland and maritime shrubland. The area best suited for restoration is a depression dominated by bayberry, rugosa rose, and *Spireae*. Most of the vegetation within the depression was dead or stressed. This condition was most likely the result of tidal waters which overtopped the road during storms in the spring of 2005. Much of the zone containing the dead or stressed vegetation was colonized this summer (2005) by purple loosestrife. The potential restoration could be expanded to the east toward the camping area. However these lands are typically 3 to 4 feet higher in elevation and are well stabilized without a large invasive species component. Restoration of salt marsh between the primary dune and access road will require the construction of a culvert under the access road to the north. The culvert could connect to the remains of a short but deeply incised ditch. An attempt to provide a tidal connection to the west (in the approximate

location of the connection shown on mapping from 1912) will likely to be difficult to maintain due to dynamic coastal processes.

The potential restoration site is contained within BioMap Core Habitat and is mapped as Priority Habitat for State-Protected Rare Species and Estimated Habitat for Rare Wildlife. The Heritage Program would not be concerned with the conversion of these shrublands to salt marsh (T. French, NHESP, pers. comm.). Land uses adjacent to the site are limited to recreational lands. Portions of the surrounding intertidal zone are mapped as suitable habitat for soft-shelled clam and blue mussel.

There were no tide data collected for this potential restoration site. The existing small ditch north of the access road could be extended into the potential restoration site by installing a relatively small culvert under the access road. Overall, the existing impairments are considered severe. Removal of the fill material to an elevation near or slightly below the adjacent marsh will restore a small portion of the salt marsh shown on historical mapping. A comparison of elevations to the adjacent marsh indicates the restoration would only require the removal of 1 to 1.5 ft of material within the depression and an additional 3 to 4 ft of material further to the east. The restoration activity will result in the loss of coastal dune or bank but would aid in the control of invasive species. Given the dynamic location of the potential restoration site, restoration efforts could easily be lost during a major coastal storm. The potential restoration site would also be relatively expensive to implement given its small size. However, the location provides unparalleled opportunities for public outreach and education.

Socioeconomic: Recreational values of the potential restoration site are enhanced by the excellent public access and wildlife viewing opportunities provided within the reservation, as well as available on-potential restoration site parking. The public ownership status, good access, and level of visitation greatly enhance educational opportunities. There is some ongoing research associated with listed shorebird breeding. The potential restoration site's Uniqueness/Heritage value is enhanced by its status as a Priority Habitat for State-Protected Rare Species and Estimated Habitat for Rare Wildlife. The potential restoration site does not include any known cultural resource elements, however past land use at this location could be of interest to visitors.

Construction Logistics/Feasibility: The restoration potential within the eastern portion of the site is enhanced by the limited size and scope of the restoration effort, public (state) ownership, excellent construction access and staging areas, lack of negative impacts to low lying abutters, and the lack of above or below ground utilities. Although the road is relatively low-lying there is sufficient cover for a small pipe without raising the roadbed. Combined construction costs for the culvert and excavation (approximately 4,000 cubic yds) are estimated to be $75,000. It is assumed that the excavated sand would be utilized within the Reservation for dune reconstruction. Further coordination is required the gauge the level of local and DCR support for the project.

Restoration Potential: The potential restoration site is considered to have moderate restoration potential based on the presence of several important socioeconomic factors including the high recreational, public land status, and the extent of the existing impairments. In addition to removing historic fill from the salt marsh, the project can control further encroachment of loosestrife and has unparalleled opportunities for public outreach and education. These benefits need to be weighted against the relatively large cost per acre which is related to the overall size of the project and the high energy environment where the work will occur. Excavated sands from the restoration area could restore portions of the adjacent dune which eroded during a significant coastal storm. Key steps toward implementation involve further coordination with the Town and

DCR to gauge the level of support and the value associated with the education and outreach potential in light of total project costs. The ability to close traffic to the ramp for a short period to facilitate construction should also be reviewed by DCR.

Site # 024

Site Features

Scale: 1:2,500

Photo 1 - Salt Marsh North of Boat Ramp Access Road Viewing South

Photo 2 - Salt Marsh North of Boat Ramp Access Road Viewing North

Photo 3 - Purple Loosestrife within Restoration Area

Photo 4 - Restoration Area Viewing Northeast

Photo 5 - East End of Restoration Area Viewing East

Photo 6 - Dune Area West of Parking Lot Viewing North

Photo 7 - Dune Area West of Parking Lot Viewing East

Great Marsh Coastal Wetlands Restoration Planning

Rapid Field Assessment

Site # 24

Salisbury Beach Reservation - Black Rock Beach

Site Information

Site ID: 24

Site Name: Salisbury Beach Reservation - Black Rock Beach

Municipality: Salisbury

Location: Southern end of Salisbury Beach State Reservation adjacent to boat ramp

Adjacent Waterbody: Merrimack River

Affected Area (Acres)

Mudflat/Open Water:	0	Total Area:	2.7
Salt Marsh:	0		
Other Wetland:	0.2	*Other Description:*	
Other:	2.5	Fill	

Impairment(s)

Tidal Restriction	☐	Fill	☑
Obstructed Ditche(s)	☐	Invasive Species	☑
Impoundment	☐	Pollution / Siltation	☐

Severity of Impairments: Severe

Project Type

Roadway Culvert(s)	☑	Obstructed Ditches	☐
Bridge	☐	Fill	☑
Berm	☐	Other	

Evidence of Restriction

Gauge Data	☐	Impounded Flow	☐
Downstream Scour Pool	☐	Obstructed Flow	☐
Upstream Scour Pool	☐	Invasive Species	☐
Bank Erosion	☐	Ponded Conditions	☐
Slumping	☐	Subsidence	☐

Structure / Channel:

Overall Condition:

Life Expectancy (Years):

Road Condition:

Structure Type:

Structure Age (Years)

Structure 1 Width (Feet):

Structure 1 Length (Feet):

Structure 2 Width (Feet):

Structure 2 Length (Feet):

Skew (Degrees):

Cover (Feet):

Scour Protectection: ☐

Adequately Aligned: ☐

Headwall Type:

Headwalll Condition:

Ecological Integrity / Habitat Value

Surrounding Land Use %

Commercial / Industrial	0
Residential	0
Agricultural	0
Undeveloped	100

Severity of Impairment(s): Severe

Invasive Plant Cover: Medium

Extent of Wooded Buffer: Poor

Habitat Connectivity: Poor

NHESP Estimated Habitats of Rare Wildlife: ☑

NHESP Priority Habitats of Rare Species: ☑

NHESP BioMap Core Habitat: ☑

NHESP BioMap Supporting Natural Landscape: ☐

ACEC: ☐

Anadromous Fish: ☐

Shellfishing Suitability: ☑

Barriers to Fish Passage

Great Marsh Coastal Wetlands Restoration Planning

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Site # 24

Salisbury Beach Reservation - Black Rock Beach

Construction Logistics / Feasibility

Traffic Volume	Low
Detour Potential	☑
Site Access	Good
Staging Areas	☑
Fill Material Concern	Minimal
Low Lying Property Concerns	None
Overhead Utility Constraint	None

Underground Utilities

Water	☐	*Telephone*	☐
Gas	☐	*Sewer*	☐
Electric	☐	*Drainage*	☐

Permitting Complexity	Medium
Local Support	Unknown
Feasibility Cost	20,000
Design Cost	25,000
Permitting Cost	25,000
Construction Cost	75,000
Total Cost	145,000
Relative Cost/Acre	63,000

Socioeconomic

Recreation

Public Access:	☑
Watercraft / Portage:	☑
Wildlife Viewing:	☑

Education

Schools Nearby:	☐
Ongoing Research:	☐
Education / Outreach Potential:	High
Saftey Concerns (Access):	Low

Uniqueness / Heritage Value

Rare Species Habitat:	☑
ACEC:	☐
Cultural Resource Features	☐
Urban Viewscape Value:	None
Urban Habitat Value:	None

Tide Surveys

	Start:		*Finish:*
Dates of 1st Survey:		-	
Date of Highest Tide:			
Max Measured Tidal Dampening:			
Percent of Tidal Prism:			
Measured Delay:			

	Start:		*Finish:*
Dates of 2nd Survey:		-	
Date of Highest Tide:			
Max Measured Tidal Dampening:			
Percent of Tidal Prism:			
Measured Delay:			

Summary

Uniqueness / Heritage Value:	High	Ecological Integrity:	Medium
Recreational Value:	High	Logistics / Feasibility:	Medium
Educational Value:	High		

Restoration Potential: Moderate